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(71) Applicant

Vee-Jay Lighting Ltd

(Incorporated in United Kingdom)

206 Boumemouth Road, Parkstone, Poole, Dorset  
BH14 9HZ

(72) Inventor

Roy Vockins

(74) Agent and/or Address for Service

Batchellor, Kirk & Eyles,

2, Pear Tree Court, Farringdon Road, London EC1R 0DS

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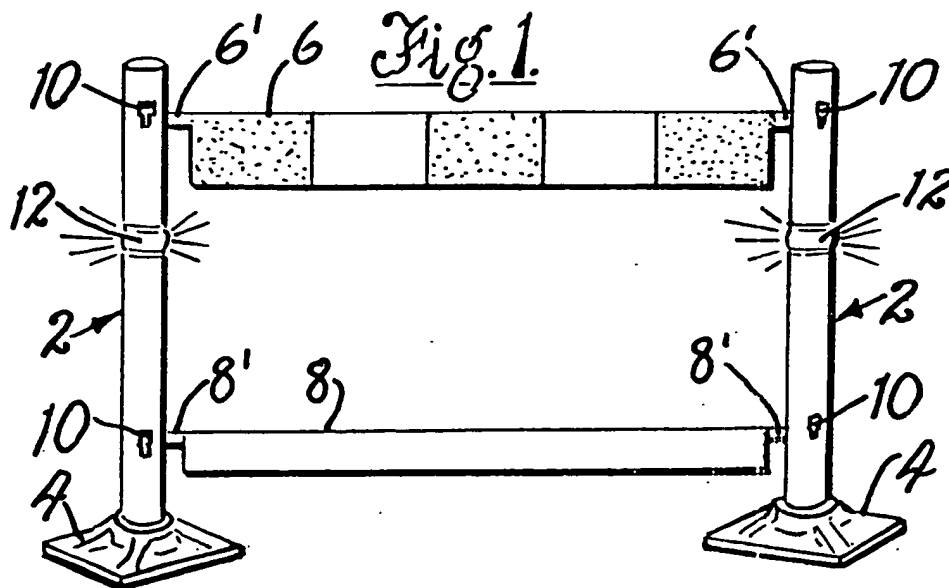
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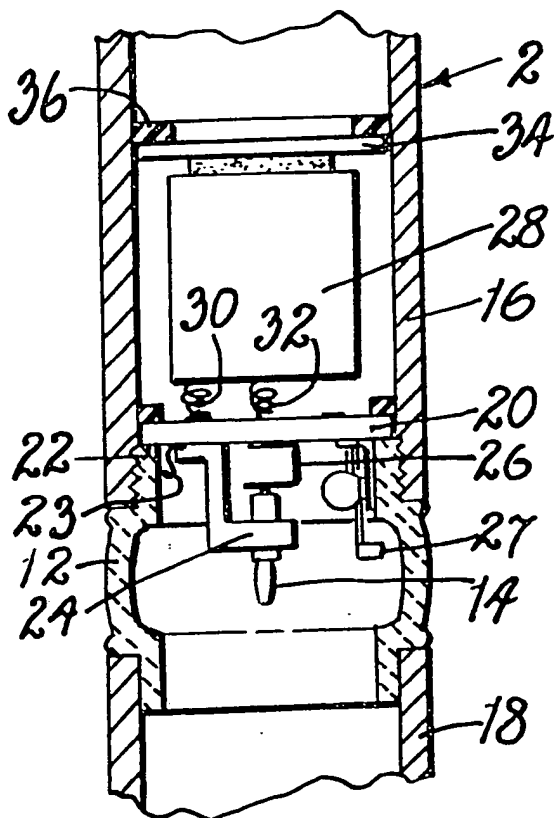
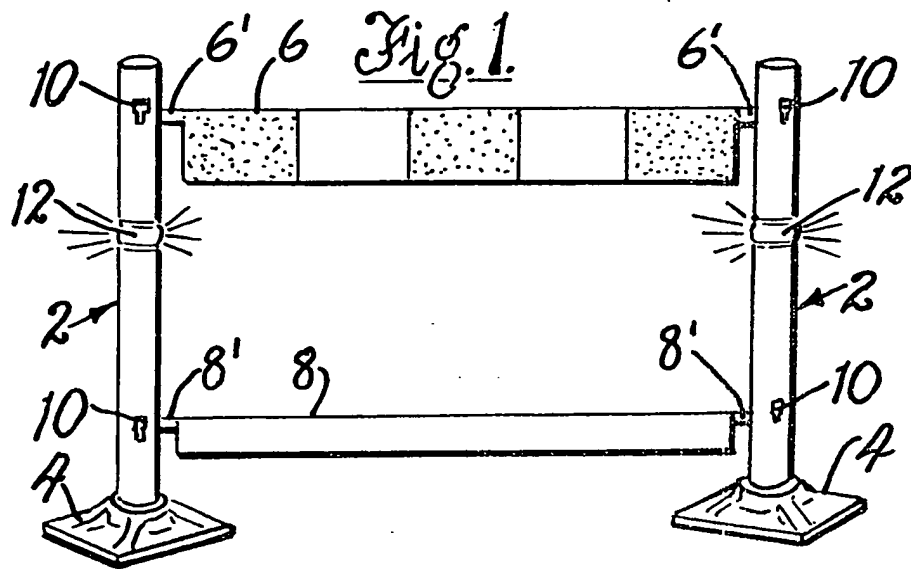
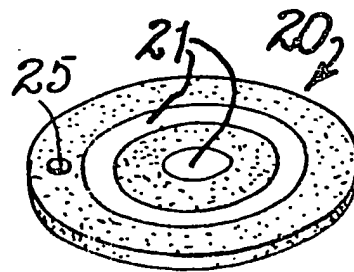
(54) Road hazard warning device

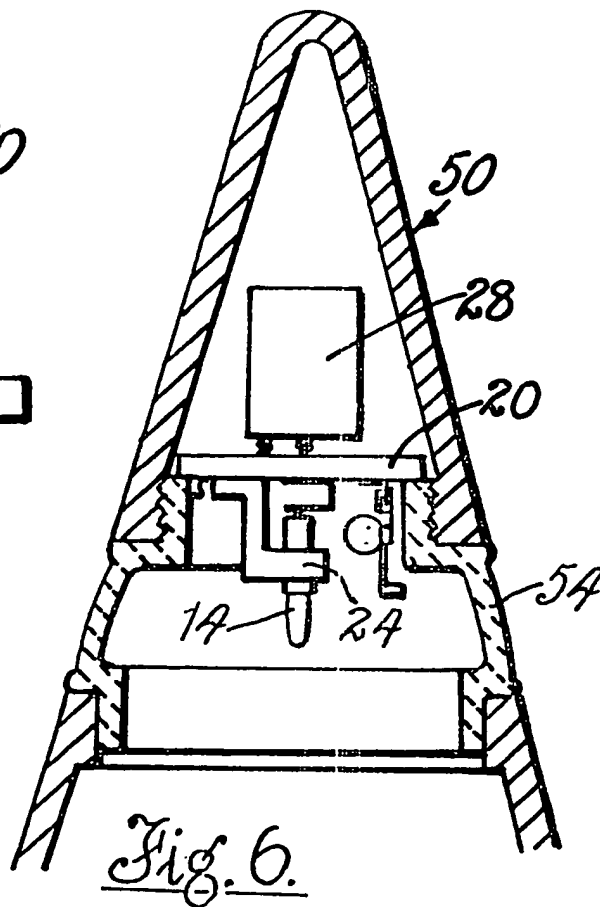
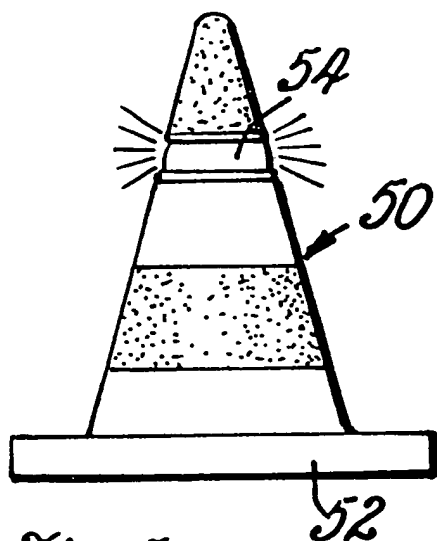
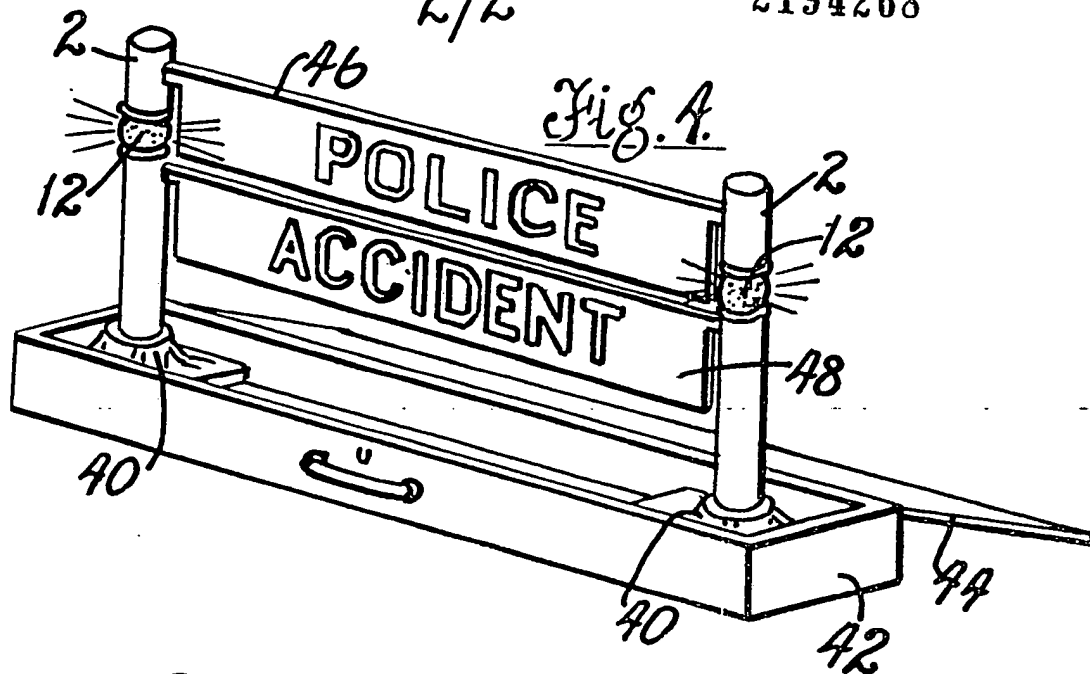
(57) A portable road hazard warning device is a rigid structure having an outer wall which is mainly opaque but with one part being of light transmitting material. A battery operable illuminating means is disposed within the structure with the illuminating means being behind the light transmitting material so that in use the structure can be seen more easily. The device is preferably in the form of an elongate post which forms part of a safety barrier system.



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*Fig. 2.**Fig. 3.*



## SPECIFICATION

### Hazard warning device

5 This invention relates to portable hazard warning devices. A particular, but not sole, application of the invention is to elongate posts for use in a safety barrier system.

10 Safety barrier systems are well known and comprise at least a pair of elongate posts arranged to stand upright with at least one cross piece in the form of a barrier board arranged substantially horizontal between the posts. The barrier system may be used indoors, say in a factory, to keep personnel from a temporary hazardous area such as a dangerous machine or a hole in the floor or it may be used outdoors around equipment or materials stored on a roadside or to surround road works.

20 Alternatively the warning device may take the form of a cone or frustum of a cone, a multiplicity of which are used to circumscribe a hazard.

25 When a safety system or cones are used outdoors it is necessary to provide some form of lighting so that the barrier system can be seen during the hours of darkness.

30 According to the present invention a portable hazard warning device comprises a rigid structure having an outer wall mainly of opaque material but with a part of the wall being of light transmitting material and a battery operable illuminating means disposed within the structure behind said part of the wall.

35 When the illuminating means is energised the light issuing from it passes through the part of the wall which is of light transmitting material thus enabling the warning device to be more readily seen during the hours of darkness.

40 Conveniently the illuminating means comprises a lamp and contact means for the lamp which are located in the structure and the structure also provides accommodation for the battery with the battery terminals electrically connected to the contact means. The contact means may include a flasher for causing the lamp to issue pulses of illumination. The structure is arranged such that replaceable batteries can be easily positioned with the terminals of the battery electrically connected to the contact means.

45 In one embodiment of the invention the structure is in the form of an elongate post for a safety barrier system and in an alternative embodiment of the invention the structure is in the form of a cone or a frustum of a cone.

60 In order that the invention may be more readily understood it will now be described, by way of example only, with reference to the accompanying drawings in which:

65 Figure 1 is a view of a safety barrier system;

Figure 2 is a sectional view of part of a post of the barrier shown in Figure 1;

Figure 3 is a perspective view of part of the device shown in Figure 2;

70 Figure 4 is a view of an alternative form of the invention;

Figure 5 is a view of an alternative embodiment of the invention; and

75 Figure 6 is a section of part of the embodiment shown in Figure 5.

80 A safety barrier system for use outdoors as a road barrier system has two posts 2 each having a heavy base 4 at one end which enables the posts to be positioned upright. A pair of cross-pieces 6 and 8 extend between the post substantially horizontal and they serve as barriers to prevent or at least discourage the vehicular or pedestrian access. The cross-pieces 6, 8 have extension portion 85 6', 8', respectively which locate within keyhole slots 10 formed in the posts 2. In Figure 1 there is shown a simple road barrier system and several cross-pieces and posts may be provided and joined together according to the length of barrier which is required.

90 Each of the posts 2 has illuminating means associated with it whereby when in use, the post can be more readily seen during the hours of darkness. As shown in Figures 1 and 2, each post has a part 12 which is of transparent or translucent material with lighting means positioned in the post behind the translucent or transparent part. The post is formed of opaque portions 16, 18 with a part 12 fitted between them. The part 12 may be in the form of a lens moulded in translucent polycarbonate with the upper end having a moulded threaded portion which mates with a similar thread on the lower end of the part 16. The lower part of the moulded lens may conveniently be a push-fit into the upper end of the part 18 and a layer of adhesive may be provided between them. At least the lens part 12 and the part 16 are hollow.

100 A plate 20 carrying or being formed as, a printed circuit board is supported on shoulders 22 formed on the upper part of the lens with clips 23 serving to locate the plate in position. On the underside of the plate there is a bulb holder 24 and a bulb 14. When the plate is mounted on the shoulder 22 the bulb 14 is within the part 12 of the post. The bulb 14 is engaged by way of spring contacts 26 mounted on the underside of the plate 20. On the upper side of the plate there is a printed circuit having contacted areas 21 which, when a battery 28 is positioned in the part 16 of the post, two coil spring terminals 30, 32 of the battery engage with the contact areas 21 on the plate 20 to illuminate the bulb 14. Whenever the battery is so positioned on the top of the plate 20 the bulb may be illuminated. A photo-cell 27 mounted on the underside of the plate 20 and extending into the lens 12 may be used to switch on the bulb

only when the ambient lighting level is low. Alternatively or additionally, a switch may be provided within the post to switch the illuminating means on and off. This switch may be of the type which is actuated from a location remote from the switch by a beam of electromagnetic radiation. [infra red radiation]. Furthermore, a flasher may be provided to cause the bulb to be energised in a series of pulses so that the light emitted by the bulb is a series of flashes. A cover plate 34 having a peripheral seal 36 and a sponge pad on its underside is positioned above the battery to provide stability therefore and to prevent any undue ingress of water to the electrical components.

The top of each post is provided with a cap (not shown) to prevent entry of rain water. To gain access to the post to remove the battery, the cap is first removed and then a pair of thin wire hook members (not shown) are inserted into the post, each hook enters a hole provided in plate 34 and the hook members are then drawn out together with the plate. The hook members are then reinserted and hooked beneath the battery to withdraw it in the same manner. One or more holes 22 in the plate 20 enables that also to be withdrawn by the hook members in the same manner as the plate 34 for replacement of the bulb 14.

Alternatively the upper part of the post 16 may be unscrewed from the threaded portion of the part 12 after which the plate 20 and the battery are removed. The battery is then exchanged and the plate 20 replaced in position before the parts of the posts are re-assembled.

The lens 12 may extend around the entire 350° of the outer wall of the post or if desired only part of the lens may be translucent or transparent. Of course it may also be coloured. The lens part 12 may be positioned towards the upper end of the post or in fact in may comprise a top section of the post. Alternatively if desired the lens part 12 could be positioned closer to the base 4 than is shown in Figure 1.

The post described above, when incorporated in a safety barrier system provides a comparatively inexpensive illuminated barrier with a high degree of proof against vandalism compared with previously known barrier systems.

As shown in Figure 4 a pair of the posts 2 are arranged substantially vertical each with its lower end in a socket 40 positioned in a box 42 having a removable or hinged lid 44. A pair of boards 46, 48 supported by the posts are labelled Police, Accident respectively. The light transmitting part 12 of each post may be coloured blue. The arrangement shown in Figure 4 is a particularly portable arrangement whereby when the warning device has served its purpose at one location, the boards 46, 48

are removed from the posts and positioned in the box 42 and thereafter the posts are removed from the sockets 40 and they too are arranged in the box. The lid 44 is then positioned to cover the interior of the box and the box with the barrier inside it is readily portable.

Figures 5 and 6 show an arrangement where the warning device is in the form of a code or frustum of a cone 50 mounted on an enlarged base 52. These cones can readily be arranged to stand around some form of hazard and although most of the outer wall of the cone is of opaque material a lens part 54 is of light transmitting material. Within the cone there is a plate 20, holder 24 and bulb 14 as shown in Figure 2 with the bulb 14 located within the lens 54 of the device. The upper portion of the device is screw threaded onto the top end of the lens 54 to enable the upper part to be removed to readily replace the battery 28.

#### CLAIMS

1. A portable hazard warning device comprising a rigid structure having an outer wall mainly of opaque material but with a part of the wall being of light transmitting material and a battery operable illuminating means disposed within the structure behind said part of the wall.

2. A warning device as claimed in claim 1 in which the illuminating means comprises a lamp and contact means therefor located in the structure and means for accommodating the battery in the structure with the battery terminals electrically connected to the contact means.

3. A warning device as claimed in claim 2 in which the contact means includes a flasher for causing the lamp to issue pulses of illumination.

4. A warning device as claimed in claim 2 or 3 in which the contact means includes a photocell for controlling the operation of the lamp.

5. A warning device as claimed in any preceding claim in which the illuminating means is controlled from the battery by an on/off switch disposed within the structure and the switch is actuable from a location remote from the switch by a beam of electromagnetic radiation.

6. A warning device as claimed in any preceding claim in which the structure is in the form of an elongated post for a safety barrier system.

7. A warning device as claimed in claim 6 in which the post comprises opaque end parts with the part therebetween being of light transmitting material.

8. A warning device as claimed in claim 6 or 7 wherein a pair of said posts are arranged upright and have at least one substantially horizontal cross-piece extending therebetween.

9. A warning device as claimed in claim 8 in which the posts are positionabl vertically with their lower ends in sockets formed in a box having an openable lid, and wher in th  
5 post on being removed from the sockets can be stored along with the or each cross-piece in said box.

10. A warning device as claimed in any of the claims 1—5, in which the structure is in the form of a cone or a frustum of a cone.

11. A portable hazard warning device substantially as hereinbefore described with reference to the accompanying drawings.

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